

PATENT COOPERATION TREATY

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From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 30 AUG 2005

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2005/010014

International filing date (day/month/year)
23.03.2005

Priority date (day/month/year)
23.03.2004

International Patent Classification (IPC) or both national classification and IPC
B60G17/015, B60K31/00, B60T8/00, B62D6/00

Applicant
KELSEY-HAYES COMPANY

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No.
PCT/US2005/010014**Box No. I Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	1-9,15
	No: Claims	10-14
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations**see separate sheet**

**WRITTEN OPINION OF THE
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AUTHORITY (SEPARATE SHEET)**

International application No.

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Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following documents:

- D1: US-B1-6 282 474 (CHOU CLIFFORD C ET AL) 28 August 2001 (2001-08-28)
- D2: US 2003/212482 A1 (LU JIANBO ET AL) 13 November 2003 (2003-11-13)
- D3: US 2003/058118 A1 (WILSON KITCHENER C) 27 March 2003 (2003-03-27)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 10 does not involve an inventive step in the sense of Article 33(3) PCT.

The document D1 discloses (the references in parentheses applying to this document):

An apparatus for detecting a rollover event for a vehicle comprising:
a lateral acceleration sensor (32) for sensing a lateral acceleration of the vehicle and
a controller (16) that is programmed with a dynamic vehicle model, the controller being
configured to determine a rollover index using the sensed lateral acceleration and
determine if the rollover index is above a predetermined threshold, the controller being
further configured to output a control signal to a system of the vehicle (column 3, lines 5-6)
when the rollover index is above the predetermined threshold (abstract).

The subject-matter of claim 10 therefore differs from this known apparatus in that:

a) The apparatus comprises:

- a yaw rate sensor for sensing a yaw rate of the vehicle;
- a sensor for sensing a speed of the vehicle;
- a steering wheel sensor for sensing a steering wheel angle of the vehicle;
- a tire load sensing mechanism for measuring a tire load.

b) The control signal is to implement a corrective action to reduce the potential of an actual rollover.

Claim 10 of the present application cannot be considered as involving an inventive step

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(Article 33(3) PCT) for the following reasons:

a) These features are merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill.

Indeed the informations provided by the respective sensors/sensing mechanism are only are only taken as optional inputs by the controller (cf "at least one of").

b) This feature is a matter of normal design procedure, see for example document D2 (see figure 4).

3. Dependent claims 11-14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step as the relevant subject matter is disclosed in the cited documents or falls within the knowledge and ability of the skilled person.

4. The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

A method for detecting a potential rollover event, the method comprising the steps of:

- determining a lateral kinetic energy of the vehicle;
- determining a rollover potentiality index based on the lateral kinetic energy;
- determining if the rollover index is above a predetermined threshold (see abstract and column 3, lines 2-52).

5. The subject-matter of claim 1 differs from this known method in that:

- the lateral kinetic energy is based on the vehicle longitudinal velocity and the vehicle side slip angle;
- the tire load is measured;
- the rollover index is weighted by a factor of the lateral acceleration;
- the rollover index is weighted by a factor of the tire load.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

6. The problem to be solved by the present invention may be regarded as:

- allowing for a better estimation of the potential for a wheel lift.

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The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

D3 discloses a stability control system using the tire load as an input. Nevertheless, not even a combination of the documents D1 and D3 would lead the skilled man to the specific rollover index as defined in claim 1.

7. Claims 2-9 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

8. Independent claim 15 in the category apparatus also meets the requirements of the PCT with respect to novelty and inventive step.